REMARKS

Favorable reconsideration of this application is respectfully requested.

The specification and abstract have been amended to correct minor formal errors, including those noted in the Office Action.

Claims 1-5 are present in this application and stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. 5,162,695 to Shimona.

The Applicants would like to provide the following brief discussion of the claimed invention to help provide a better understanding of the invention and its attendant advantages. The present invention relates to a cathode-ray tube apparatus comprising velocity modulation coils for modulating the scan velocity of the electron beams generated from the electron beam generating section wherein at least one of the electrodes which constitutes the electron gun assembly is constructed by coupling at least two adjacent electrode members arranged in the direction of passing of the electron beams, the first electrode member having a projecting portion on its end face coupled to the second electrode member.

With such a structure, the generation of eddy currents in the electrode by the magnetic field from the velocity modulation coils can be suppressed. Also, the magnetic field generated by the velocity modulation coils can easily permeate through the gaps between the electrode members coupled by means of the projecting portion to act effectively on the electron beams. Thus, a satisfactory velocity modulation effect can be obtained. Further, directly coupling a plurality of electrode members constituting the electrode by means of the projecting portions can increase the mechanical strength of an electrode and can prevent misalignment of the electrode members relative to the tube axis. Further, the projecting portions formed on the electrode members can suppress permeation of the neck electric field. The cathode ray tube according to the claimed invention can thus provide a cathode-ray tube apparatus capable of suppressing a decrease in velocity modulation effect, without increasing

the magnetic field of a velocity modulation coil, and also capable of providing an image with high sharpness without degrading the strength of the electrode and the work efficiency of assembling the electrode.

Turning to the §102 rejection, the Office Action quotes portions of Shimona et al. without explaining how the various elements of claim 1 are found in Shimona et al. First, Shimona et al. neither discloses nor suggests a cathode ray tube apparatus comprising velocity modulation coils for modulating the scan velocity of the electron beams. The Office Action refers to grids G1-G7 but there is no mention of any velocity modulation coils. For this reason alone, the §102 rejection must be withdrawn. The Applicants respectfully request specific identification of the velocity modulation coils in Shimona et al. if the rejection is not withdrawn.

Shimona et al. also does not disclose or suggest a cathode ray tube where at least one of the electrodes which constitutes the electron gun assembly is constructed by coupling at least first and second adjacent electrode members arranged in the direction of passing of the electron beams, with the first electrode member hawing a projecting portion on its end face coupled to the second electrode member. Again, the Office Action merely repeats portions of Shimona et al. without identifying the electrode constructed by coupling two electrodes members, or any electrode member having projecting portions where the portions are coupled to another electrode member.

The Office Action focuses on the relationship between the fifth grid, G5, and the sixth grid, G6, shown in FIGS. 4 and 5 of Shimona et al. Grids G5 and G6 are each provided with an electrode plate so that a quadrupole lens is formed between the plates. That is, to form an electron lens between grids G5 and G6, it is necessary to apply an individual voltage to each grid, and thus it is impossible for them to be considered the first and second electrode members of claim 1 since grids G5 and G6 are not "coupled."

Moreover, even if grids G5 and G6 could be considered first and second electrode members, neither has any projection portion coupled to the other electrode member. The electrodes 20-25 formed on grids G5 and G6 are not coupled to another grid and thus cannot be the projecting portions of claim 1. Therefore, it is clear that the electrode plates respectively formed on grids G5 and G6 are completely different in function from the "projecting portions" of claim 1. In particular, compared with a cathode-ray tube apparatus whose electrode members are not coupled, as in Shimona et al., a cathode-ray tube apparatus whose first and second electrode members are coupled by means of a projecting portion, as in the present invention, has the remarkable advantage of increasing by 1.3 times the effect of suppressing the eddy currents due to the magnetic field generated by the velocity modulation coils, as described on page 15, lines 15-20, of the specification of the present application. An electrode formed of the first and second electrode members as recited in claim 1 is clearly not disclosed or suggested in Shimona et al.

The quoted portions of Shimona et al. simply do not suggest the at least one electrode of claim 1, and the §102 rejection must also be withdrawn for this reason alone. The Applicants again respectfully request specific identification of the at least one electrode and the electrode member with projection portions in Shimona et al. if the rejection is not withdrawn.

Finally, the attention of the Patent Office is directed to the change of address of Applicants' representative, effective January 6, 2003:

Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

1940 Duke Street

Alexandria, VA 22314.

Please direct all future communications to this new address.

It is respectfully submitted that the present application is in condition for allowance and a favorable decision to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Carl E. Schlier

Gregory J. Maier
Registration No. 25,599
Carl E. Schlier
Registration No. 34,426
Attorneys of Record

22850

703-413-3000
703-413-2220 Fax
GJM/CES/maj
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IN THE SPECIFICATION

Please amend the paragraph beginning on page 2, line 13 to read as follows:

In order to [intensity] intensify the magnetic field of the velocity modulation coil, two methods are available: to increase the current flowing in the velocity modulation coil, or to increase the number of turns of the velocity modulation coil. In the case of the former, the diameter of wire of the coil needs to be increased, and a greater power consumption is required to supply a greater current. As a result, a load on the circuit, as well as the cost, will increase. In the case of the latter, the thickness of the velocity modulation coil increases, and the adjustment performance for a purity convergence magnet deteriorates. Although the magnetic field can theoretically be intensified by adjusting the position of the velocity modulation coil, the position of the coil cannot freely be changed because of positioning restrictions on actual design, as mentioned above. Besides, in general terms, if a magnetic field for correcting the contour of an image is intensified by some method, the action of the magnetic field on electron beams increases and the amount of a leak magnetic field also increases. Consequently, a problem of an electromagnetic wave fault may arise.

Please amend the paragraph beginning on page 4, line 27 to read as follows:

As has been mentioned above, in order to obtain an image with high sharpness, it is necessary to cause the magnetic field of the velocity modulation coil to effectively act on the electron beams. However, this magnetic field causes an eddy current in the electrode of the

electron gun assembly, and the eddy current [suppress] suppresses the magnetic field of the velocity modulation coil and degrades the velocity modulation effect.

Please amend the paragraph beginning on page 10, line 22 to read as follows:

A video signal 17 with a waveform shown in FIG. 7A is subjected to first-order [differential] differentiation. Thus, a pulse current 18 having peaks at a rising portion and a falling portion of the video signal, as shown in FIG. 7B, is obtained. The pulse current 18 is supplied to the velocity modulation coils 9, thereby causing the velocity modulation coils 9 to generate a magnetic field. The magnetic field generated by the velocity modulation coils 9 is combined with the horizontal deflection magnetic field generated by the deflection yoke 8, and a composite magnetic field 19, as shown in FIG. 7C, is formed. If the composite magnetic field 19 is subjected to first order [differential] differentiation, a curve 20 shown in FIG. 7D is obtained. The scan velocity of a horizontally deflected electron beam is proportional to the variation of the magnetic field. Accordingly, the horizontal scan velocity of the electron beam varies, as indicated by the curve 20. Specifically, in a first half time period T1 of the rising portion (changing from black to white) of the video signal, the scan velocity is increased to lower the luminance of the image. In a second half time period T2, the scan velocity is decreased to raise the luminance of the image. In the falling portion (changing from white to black) of the video signal, the scan velocity varies reverse to the case of the rising portion. Thereby, the contours of the rising and falling portions of the display image are corrected, and the sharpness of the image is enhanced.

Please amend the paragraph beginning on page 14, line 10 to read as follows:

The projecting portions 10 of these electrode members are formed at regions where the magnetic field generated by the velocity modulation coils 9 does not act on the electron

beams. Referring to FIG. 3A, assume that a maximum diametrical dimension of the electron beam passage hole 11 in the horizontal direction including the center axis C of the passage hole 11 is 100%. If each projecting portion 10 is formed within a predetermined region (where the electron beam will mainly pass) corresponding to 50% of the maximum diametrical dimension (100%), with the center of this 50% dimension being set at the center axis C of the passage hole 11, the eddy current suppression effect will gradually decrease as the location of the projecting portion 10 becomes closer to the center axis C. If each projecting portion 10 is formed in a region outside the 50% dimension, the eddy current suppression effect will gradually increase as it is located away from the region of 50% dimension. In short, if the maximum horizontal diametrical dimension of the electron beam passage hole 11 is D, it is desirable that the projecting portion 10 be located within a region corresponding to [4/D] <u>D/4</u> from the end of the passage hole 11 toward the center axis C.

<u>IN THE ABSTRACT</u>

Please amend the Abstract as follows:

At least one of <u>the</u> electrodes of an electron gun assembly is constructed by coupling at least first and second electrode members arranged in a direction of passing of electron beams. The first electrode member has a projecting portion on an end face thereof, which is to be coupled to the second electrode member disposed adjacent to the first electrode member. The first electrode member is coupled to the second electrode member via the projecting portion.